

4862/14
מס, ליד

מדינת ישראל

משרד ראש הממשלה

ארכיון המדינה

Survey of Bridges Statical Computations
& Tables Showing Carrying Capacities on Route:
TulKarim Rd.

מס, ליד
מס, ליד

מחלקה

מדינת ישראל
גנזך המדינה



שם תיק: Survey of Bridges Statical Computations &
ables Showing Carrying Capacities on Rou

מזהה פנימי: מ-4862/14

מזהה פריט: 000qd7g

תאריך הדפסה: 05/02/2017

כתובת: 2-108-11-11

Other files dealing with
same Subject

BD/88/c

BD/22/R

SURVEY OF BRIDGES

GPP. 315-30,000-23-1-36-22/S.

[illegible]

CULVERT AT KM 96/2 NEW DECK.

$$\text{EXISTING } F_0 = .25 \text{ m } \checkmark$$

$$D = .18 \text{ " } \checkmark$$

$$\Sigma = .43 \text{ m } \checkmark$$

IT IS ASSUMED THAT A MINIMUM FILL OF .30m
CAN BE PROVIDED FOR THE NEW DECK.

$$\text{SPAN} = 0.95 + 0.10 = 1.05 \text{ } \checkmark ; b' = 0.10 + 2 \times 0.30 = 0.70 \text{ } \checkmark$$

L# 9. 2 T.L.U $\checkmark$

$$P = \frac{22.5}{1.50} = 15 \text{ t. } \checkmark$$

$$M^P = 15 \times \frac{2.10 - 0.70}{8} = 2.62 \text{ t.m } \checkmark$$

L# 8 2 T.L.U $\checkmark$

$$P = \frac{27.5}{3.0} = 9.2 \text{ t. } \checkmark$$

SLAB 22 cm $\checkmark$

$$q = 0.22 \times 2.4 + 0.30 \times 2.1 = 1.16 \text{ t/m}^2 \checkmark$$

$$M^S = 1.16 \times \frac{1.05^2}{8} = 0.16 \text{ t.m } \checkmark$$

$$\text{MAX. } M = 2.62 + 0.16 = 2.78 \text{ t.m } \checkmark$$

$$h = 22 - 3 = 19 \text{ cm } \checkmark$$

$$\tau = 0.360 \quad \sigma_c / f_t = 48 / 1250$$

$$A_{st} = \frac{19}{1.429} = 13.3 \text{ cm}^2 \checkmark$$

TAKEN

checked $\checkmark$ $7 \phi 5/8 \quad A_{st} = 13.85 \text{ cm}^2 \checkmark$
R 1042 $\checkmark$

CULVERT AT KM 100/1 — NEW DECK —

EXISTING DECK + FILL = 0.53 m

IT IS ASSUMED THAT FOR THE NEW DECK A
FILL OF 30 cm HEIGHT CAN BE PROVIDED

$$\text{SPAN} = 1.55 + .15 = 1.70 \text{ m} \quad L' = 0.10 + 2 \cdot 0.30 + 0.70 =$$

Let 9 T.L.V.

$$P = \frac{22.50}{1.72} = 13.1 \text{ t.}$$

$$M^P = 13.1 \times \frac{2 \times 1.70 - 0.70}{8} = 4.40 \text{ t.m}$$

Let 8 T.L.V.

$$P = \frac{27.50}{3.00} = 9.2 \text{ t.}$$

SLAB 28 cm

$$g = 0.30 \times 2.1 + 0.28 \times 2.4 = 1.30 \text{ t/m}^2$$

$$M^g = 1.30 \times \frac{1.70^2}{8} = 0.47 \text{ t.m}$$

$$\text{MAX. } M = 4.40 + 0.47 = 4.87 \text{ t.m}$$

$$l = 2.8 - 3 = 2.5 \text{ m}$$

$$\gamma = 1.358$$

$$\sigma_{c/st} = 49/1250$$

$$A_{st} = \frac{2.5}{1.404} = 17.8 \text{ cm}^2$$

TAKEN

$$19 \phi 5/8^4 = 17.8 \text{ cm}^2$$

E.B 7/10/02

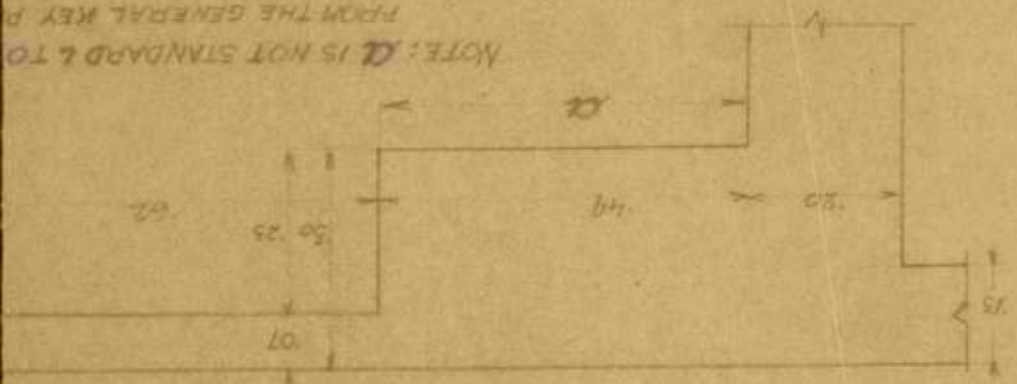
20' x 10'

15.5	24.00	27.1	24.4	14.3	65.7	53.6	44.4	49.8	119.35
84	1370	38.2	11.3	24.7	215	38.2	49.8	49.8	
					215	11.1	13.5	16.1	53.6
					17	10.2	12.3	8	49.8
					8.00				49.8
					13.20				
					12.50				
					11.0				
					1/4	5/16	1/8	1/8	

2 @ 9 1/2



NOTE: A IS NOT STANDARD & TO FROM THE GENERAL KEY P



SECTION C-C

SECTION F-F



TABLE
SHOWING CARRYING CAPACITIES OF CULVERTS AND BRIDGES
ON ROUTE QALQILYA - TULKARM

1 KILO- METER	2 CONSEC. NO. BETWEEN APPROACHES	3 CLEAR SPAN IN M.	4 SHORT DESCRIPTION	5 LOADING								6 REMARKS
				1	2	3	4	5	6	7	8	
95	1	1.70	R.C. SLAB	<				S				← JUNCTION TO THE STREET QALQILYA KEFAR SAVA
96	1	3x1.70	R.S.J. IN CONCRETE	<				S				
	2	.95	STEEL PIPES CARRYING CONCRETE DECK	1.7-SL	1.7-SL	1.7-SL	1.5-SL	1.7-SL	1.7-SL	1.7-SL	1.7-SL	
97	1	1.00	DIFFERENT STEEL SECTIONS IN CONCRETE	<				S				
	2	1.50	STONE MASONRY ARCH	<				S				
98	1	2.00	STONE MASONRY ARCH	<			S			S-S		
99	1	1.00	R.C. SLAB	<				S				
	2	2.00	" "	S-S	S	S-S				S-SL		
100	1	1.55	" "					-SL				
	2	3.00	STONE MASONRY ARCH	<	S			S-S		S-SL	S-S	
101	1	1.60	R.C. SLAB	<				S				
103	1	2x2.00	R.S.J. IN CONCRETE	<	S				S-SL			
	2	1.50	RAILS IN CONCRETE	<				S				
104	1	.65	R.C. SLAB	<				S				
	2	1.60	RAILS IN CONCRETE	<				S				
105	1	2x2.00	R.S.J. IN CONCRETE	<	S				S-SL			
	2	1.00	RAILS IN CONCRETE	<				S				
106	1	.60	STONE SLABS	<				S				
107	1	3x3.35, 3x2.05	R.S.J. IN CONCRETE		S-S			S-SL		S	S-SL	WADI IRTAH BRIDGE
	2	2.00	R.C. SLAB	S-S	S	S-S			S-SL			
108	1	.60	STONE SLABS	<				S				
	2	1.90	R.C. SLAB	S-S	S	S-S			S-SL			
												RAILWAY STATION TULKARM
												← JUNCTION WITH TULKARM - KHARAT BEIT LID RD
												DEIR SHARAH - TULKARM KHARAT BEIT LID RD

9
2
N
E
D

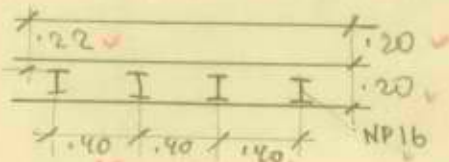
SURVEY OF BRIDGES

LIST OF R. C. BOXES

N ^o	ROAD	KILOAGE	CLEAR SPAN	HEIGHT OF FILL + THICKNESS OF CONSTRUCTION	THICKNESS OF SLAB	SHORT DESCRIPTION	REMARKS
	1	2	3	4	5	6	7
1		95/1	.70	.90			SAFE
2		99/1	1.00	.58	.18	Decade rails	SAFE
3		99/2	2.00	.52	.22	φ18 spd 20	as 107/2
4		100/1	1.55	.53	.20	φ10 spd 40	see calculation
5		101/1	.60	.35			SAFE
6		103/2	1.50	.40	.25	2" spd 10 cm	as 104/2 SAFE
7		104/1	.65	.45	.25		SAFE
8		104/2	1.60			As 103/2	+ see calculation
9		105/2	1.00	.40		As 103/2	as 104/2 SAFE
10		107/2	2.00	.50		As 99/2	+
11		108/2	1.90	.43		As 99/2	as 107/2
R. S. J IN CONCRETE							
		96/1	2x1.70	.40	.20	I 1016 spd 40	+ see calculation
		96/2	.95	.43	.18	I 10 3" spd 30	+ see calculation
		97/1	1.00	.40		I 10 520 all possible types of steel	SAFE
		103/1	2x2.00	.45	.30	I 1015 spd 40	+ see calculation
		105/1	2x2.00			As 103/1	as 103/1
		107/1	3x3.35 3x2.05				see calculation
STONE MASONRY ARCHES							
		97/2	1.50 .30	.55	.30		see calculation
		98/1	2.00 .60	.44	.34		see calculation
		100/2	3.00 .65	.50	.35		

QALBILYA - TULKAREH KM 96/1

$$NP16 \quad W = 117 \text{ cm}^3$$



$$H_p = 140 \times 117 = 1.644 \text{ m}$$

$$g = (2.4 + 2.1) \cdot 20 \times .4 = .36 \text{ m/b}$$

$$z_o = 1.70$$

$$z = 1.85 \text{ m}$$

$$H_g = .36 \times \frac{1.85^2}{8} = .15 \text{ cm}$$

8A2TLU

$$b = 3.00 \text{ m}$$

$$b' = .10 + .44 = .54$$

$$P = \frac{27}{3} \times .4 = 3.6 \text{ t/b}$$

$$H_p = 3.6 \times \frac{3.7 - .54}{8} = 3.6 \times .395 = 1.42 \text{ m}$$

$$S \leq H = 1.57 \text{ m}$$

7A2TLU

$$b = (.60 + .44) \times 2 = 2.08$$

$$P = \frac{19.5}{2.08} \times .4 = 3.74 \text{ t/b}$$

$$H_p = 3.74 \times .395 = 1.48 \text{ m}$$

$$1.63 \text{ m}$$

S

6B2TLU

$$b = (.66 + .44) \times 2 = 2.20 \text{ m}$$

S

4A2TLU

$$b = 2 \times .30 + .44 + .30 = 1.34 \text{ m}$$

$$P = \frac{12.75}{1.34} \times .4 = 3.81$$

$$H_p = 3.81 \times .395 = 1.50$$

$$\leq H = 1.65 \text{ m}$$

S

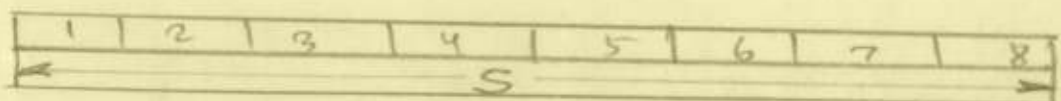
32TL

$$b = .52 \times 2 + .36 + .44 = 1.84$$

$$P = \frac{38.5}{1.84} \times .4 = 2.21$$

$$H_p = 2.21 \times \frac{1.85^2}{8} = .94$$

S



noted

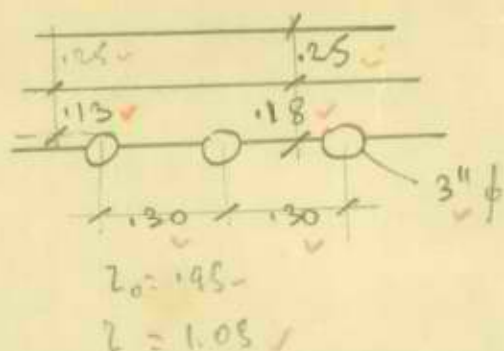
20/8/42

19.8.42

checked 20.8.42

48

QALQILYA - TULKAREM KM 96/2



$$W = 12.1 \text{ cm}^3$$

$$M_p = 1400 \times 12.1 = .17 \text{ tm}$$

$$q = (2.4 \times .18 + 2.1 \times .25) \times .3 = .29 \text{ t/m}$$

$$M_g = .29 \times \frac{1.05^2}{8} = .039 \text{ tm}$$

8A1TLL

$$b = 2.9 + .76 = 3.66$$

$$P = \frac{19}{3.66} \times .3 = 1.55 \text{ t/p}$$

$$b' = .10 + 2 \times .38 = .86$$

$$M_p = 1.55 \times \frac{2.1 - .86}{8} = 1.55 \times .155 = .24$$

$$n = \frac{34}{28} = 1.2$$

7A1TLL

$$b = .60 + .76 = 1.36 \text{ m}$$

$$P = \frac{13}{2 \times 1.36} \times .3 = 1.43 \text{ t/p}$$

7B1TLL

$$b = 3.33 + .76 = 4.09$$

$$P = \frac{9.2}{4.09} \times .3 = 1.48 \text{ t/p}$$

$$M_p = 1.48 \times .155 = .23$$

$$M_p = 1.43 \times .155 = .22$$

$$n = \frac{24}{28} = 1.3$$

$$\Sigma M = .26$$

$$n = \frac{34}{26} = 1.3$$

6B1TLL

$$b = .66 + .76 = 1.42 \text{ m}$$

$$P = \frac{13}{2 \times 1.42} \times .3 = 1.37 \text{ t/p}$$

$$M_p = 1.37 \times .155 = .21$$

$$n = \frac{34}{25} = 1.4$$

$$\Sigma M = .25$$

4A1TLL

$$b = .30 + .76 = 1.06$$

$$P = \frac{8.5}{2 \times 1.06} \times .3 = 1.2 \text{ t/p}$$

$$M_p = 1.2 \times .155 = .186$$

$$n = \frac{340}{225} = 1.5$$

$$\Sigma M = .225$$

2A1TLL

$$b = 1.06$$

$$P = \frac{7.5}{2 \times 1.2} \times .3 = 1.06 \text{ t/p}$$

$$M_p = 1.06 \times .155 = .164$$

$$n = \frac{340}{203} = 1.7$$

$$\Sigma M = .203$$

31TLL

$$b = .52 + .76 = 1.28$$

$$M_p = 1.19 \times \frac{1.05^2}{8} = .163$$

$$P = \frac{38.5}{2 \times 1.28 \times 9.79} \times .3 = 1.19 \text{ t/p}$$

$$n = \frac{34}{20.7} = 1.7$$

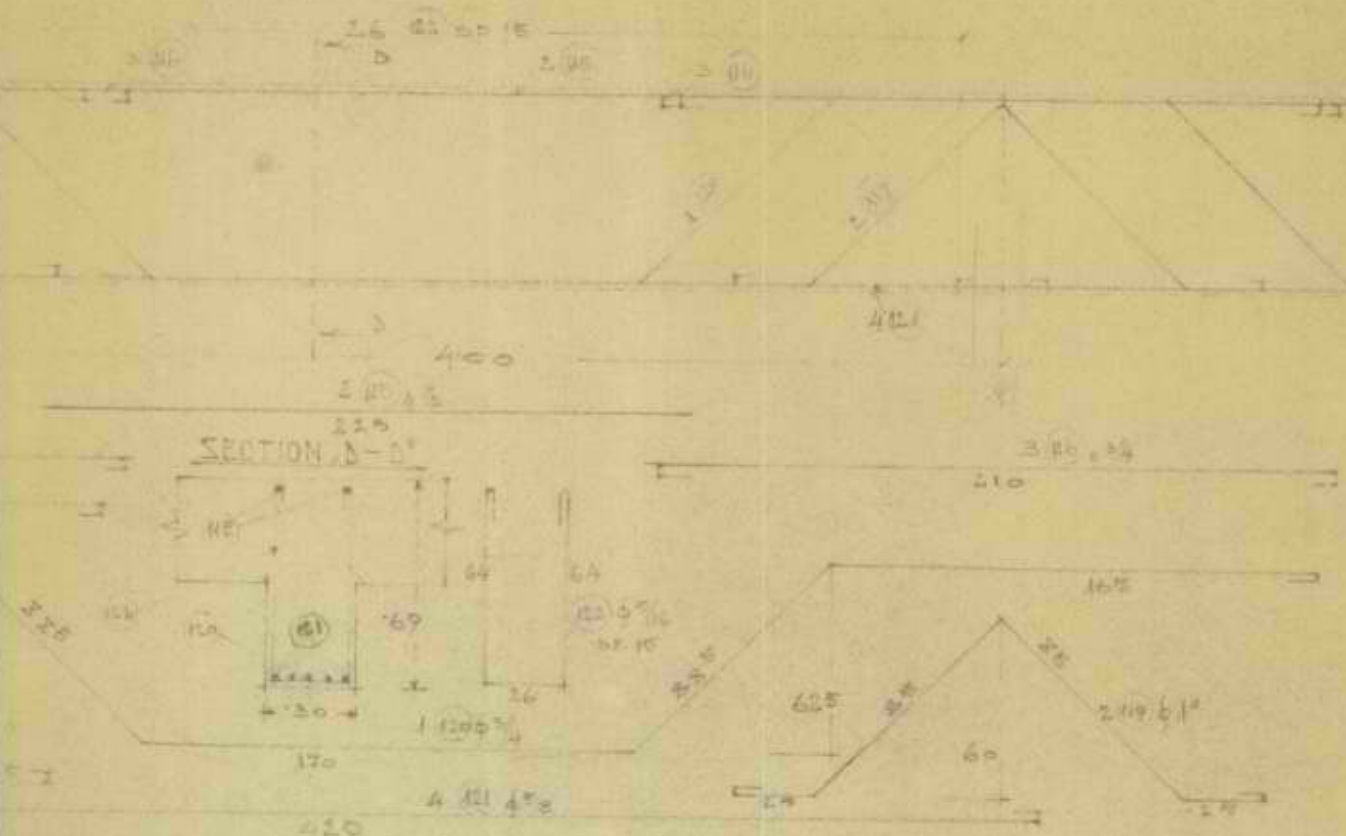
noted
20/8/1248

1	2	3	4	5	6	7	8
1.7-5L	1.7-5L	1.7-5L	1.5-5L	1.4-5L	1.3-5L	1.2-5L	

$$\Sigma M = .202$$

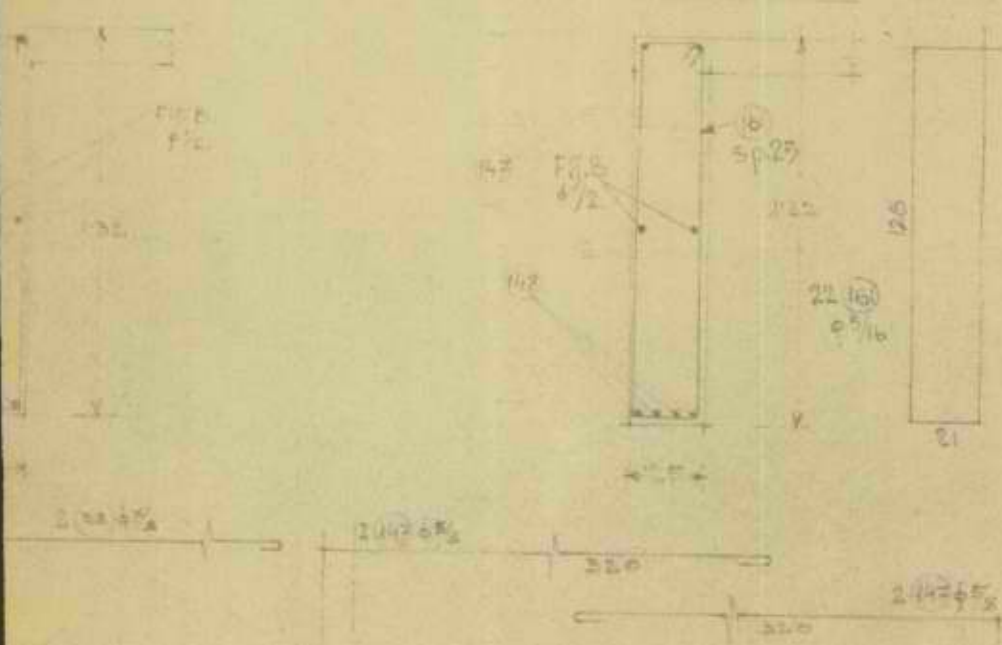
noted 5L 20.8/1248

87 111 (12 14 15 16)

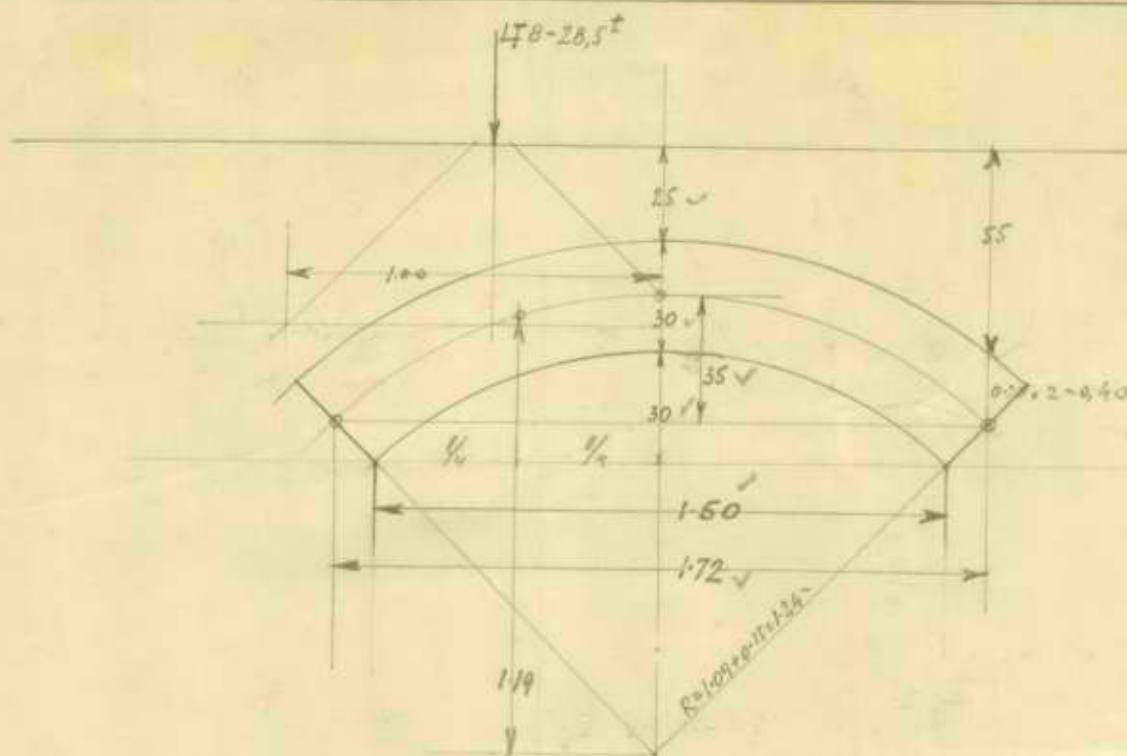


87 215

SECTION T-70 87 222



87 215-216	AS	87 215
87 217-221		87 217
87 222-231		87 222
87 232-239		87 232
87 240-245		87 240
87 246-248		87 246
87 249, 250		87 249
87 251		87 251
87 252-258		87 252



$$n = \frac{1.72}{0.35} = 4.91$$

$$p_R = 0.30 \cdot 2.6 + 0.25 \cdot 2.1 = 0.78 + 0.52 = 1.3 \frac{1}{m}$$

$$p_A = 0.40 \cdot 2.6 + 0.55 \cdot 2.0 = 1.04 + 1.1 = 2.14 \frac{1}{m}$$

$$AREA = 3000 \text{ cm}^2$$

$$S.M. = 100 \cdot \frac{30^2}{6} = 15000 \text{ cm}^3$$

LT8 2TLU

$$P = 19 \times 1.5 = 28.5^t (+50\% \text{ IMP.}) ; p = \frac{28.5}{3.0 \cdot 1.0} = 9.5 \frac{1}{m}$$

$$p_R = 1.3 + 4.75 = 6.05 \frac{1}{m}$$

$$p_A = 2.14 + 4.75 = 6.89 \frac{1}{m}$$

$$m = \frac{6.89}{6.05} = 1.14$$

$$H = \frac{1.72^2}{8 \cdot 0.35} \cdot \frac{6.14}{6} \cdot 6.05 = 1.06 \cdot 1.02 \cdot 6.05 = 6.56 \frac{1}{m}$$

$$M_a = 9.5 \cdot \frac{1.72^2}{64} = 0.44 \frac{1}{m} ; \delta = \frac{6.560}{3000} \cdot \frac{1.24}{1.19} - \frac{44000}{15000} = 2.18 - 2.94 = -0.66 \frac{1}{m}$$

SAFE FOR ALL TYPES OF LOADING

19.8.42
\$

checked

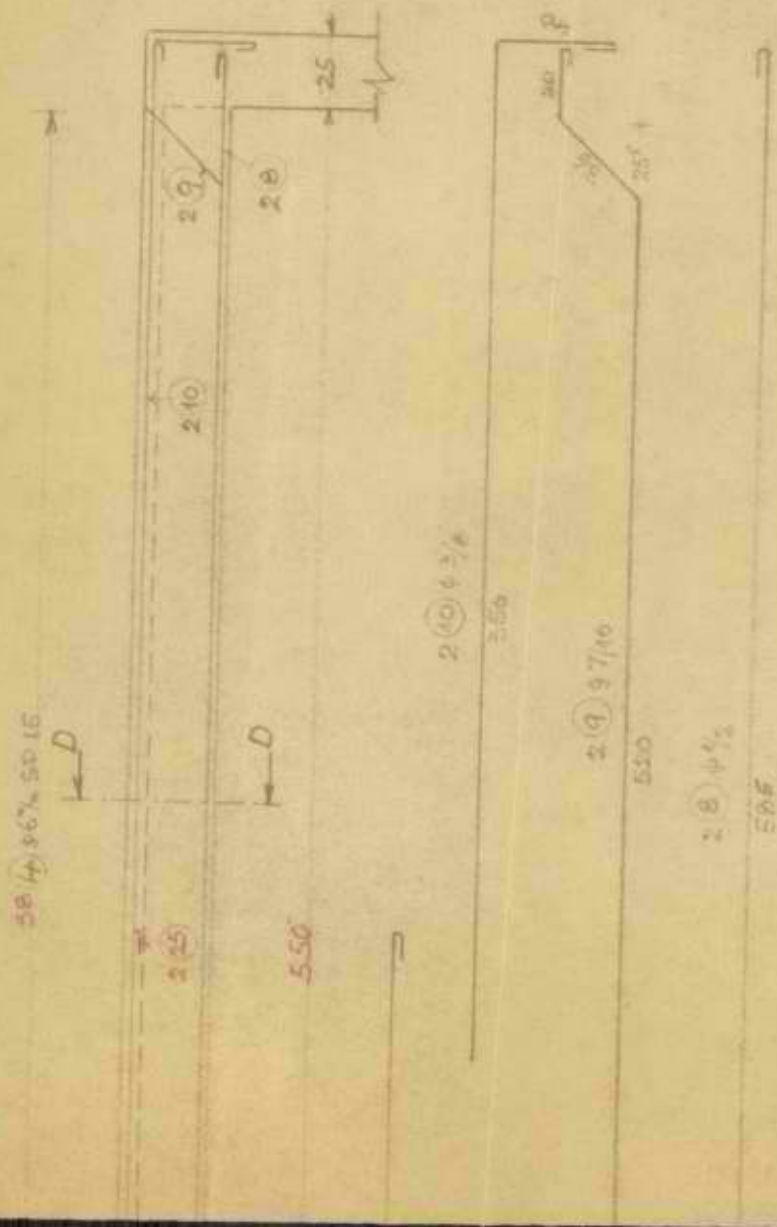
20.2.42

noted
20.2.42
\$

\$

17 18 202
14 6 600

NOTE: CL IS NOT STANDARD & TO BE TAKEN
FROM THE GENERAL KEY PLAN



THIS STANDARD DRAWING
REFERS TO DRWG. N.º B/1561/S.18

SR0802

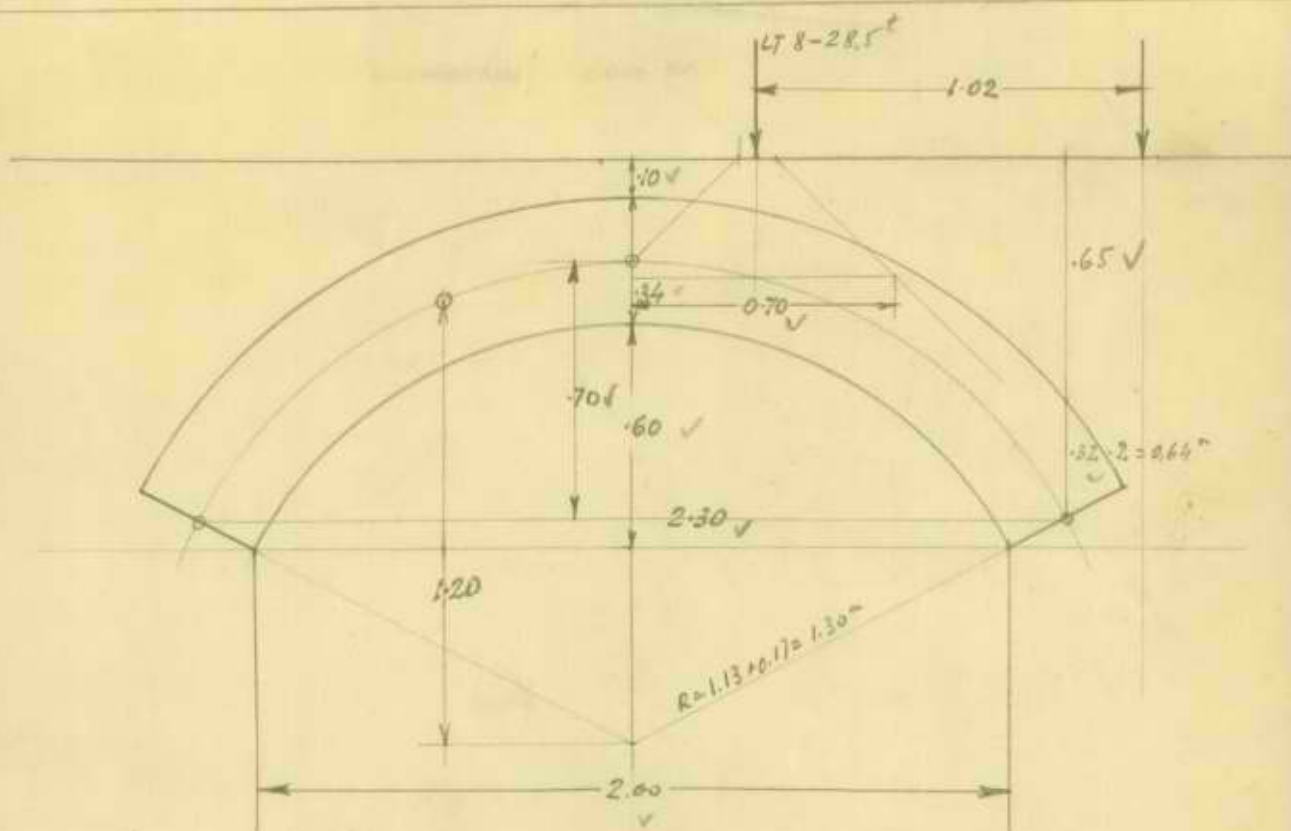
J. B. B. B.
STRUCTURAL ENGINEER

ARCHITECT

DIRECTOR OF PUBLIC WORKS

7/8/40 M.

7/8/40 M.



$$n = \frac{2.30}{0.70} = 3.3$$

$$p_r = 0.34 \cdot 2.6 + 0.10 \cdot 2.1 = 0.88 + 0.21 = 1.09 \approx 1.1 \frac{1}{m^2}$$

$$p_A = 0.64 \cdot 2.6 + 0.65 \cdot 2.0 = 1.66 + 1.3 = 2.96 \approx 3.0 \frac{1}{m^2}$$

$$AREA = 3400 \text{ cm}^2$$

$$SM = 100 \cdot \frac{34^2}{6} = 19250 \text{ cm}^3$$

LT 8-2 TLU

$$P = 19 \cdot 1.5 = 28.5^t (+50\% \text{ IMP})$$

$$p = \frac{28.5}{3.0 \cdot 0.70} = 13.55 \frac{1}{m^2}$$

$$p_r = 1.1 + 6.78 = 7.88 \frac{1}{m^2}$$

$$p_A = 3.0 + 6.78 = 9.78 \frac{1}{m^2}$$

$$m = \frac{9.78}{7.88} = 1.24$$

$$H = \frac{2.30^2}{8 \cdot 0.70} \cdot \frac{6.24}{6} \cdot 7.88 = 0.943 \cdot 1.04 \cdot 7.88 = 7.73 \frac{1}{m}$$

$$M_s = 13.55 \cdot \frac{2.3^2}{64} = 1.12 \frac{1}{m}$$

$$S = \frac{7730}{3400} \cdot \frac{1.30}{1.20} - \frac{112000}{19250} = 2.46 - 5.8 = -3.34$$

LT 8-1 TLU

$$P = 19^t \cdot 1.5 = 28.5^t$$

$$p = \frac{28.5}{4.12 \cdot 0.70} = 9.9 \frac{1}{m^2}$$

$$p_r = 1.1 + 4.95 = 6.05 \frac{1}{m^2}$$

$$p_A = 3.0 + 4.95 = 7.95 \frac{1}{m^2}$$

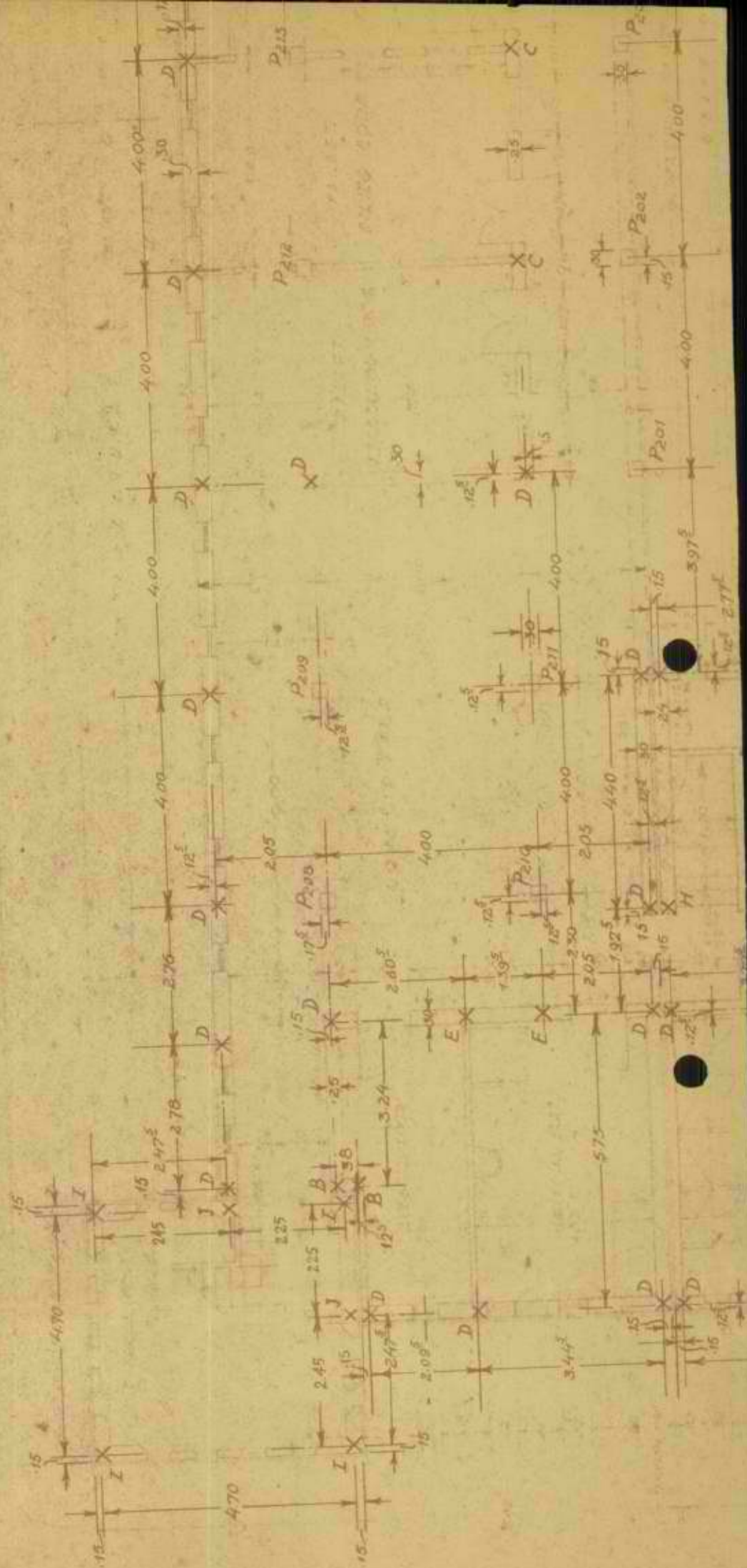
$$m = \frac{7.95}{6.05} = 1.32$$

$$H = 0.943 \cdot \frac{6.33}{6} \cdot 6.05 = 6.0^t$$

$$M_s = 9.9 \cdot \frac{2.3^2}{64} = 0.817 \frac{1}{m}$$

$$S = \frac{6000}{3400} \cdot 1.08 - \frac{81700}{19250} = 1.91 - 4.24 = -2.33 \frac{kg}{m^2}$$

S-S



LT 7B-1TLU $P = 30,3 \text{ t (+50\% IMP)}$ $p = \frac{30,3}{4,22 \cdot 0,70} = 10,25 \frac{\text{t}}{\text{m}^2}$

$$p_R = 1,1 + 5,13 = 6,23 \frac{\text{t}}{\text{m}^2} \quad m = \frac{8,13}{6,23} = 1,31$$

$$p_A = 3,0 + 5,13 = 8,13 \text{ "}$$

$$H = 0,943 \times \frac{6,31}{6} \cdot 6,23 = 6,18 \frac{\text{t}}{\text{m}^2}$$

$$M_a = 10,25 \cdot 0,0825 = 0,846 \frac{\text{t}}{\text{m}}$$

$$S = \frac{6180}{3400} \cdot 1,08 - \frac{84600}{19250} = 1,96 - 4,40 = -2,44 \frac{\text{kg}}{\text{cm}^2}$$

S-S ✓

LT 6B2TLU $P = 19,5 \text{ t (+50\% IMP)}$ $p = \frac{19,5}{2,64 \cdot 0,70} = 10,55 \frac{\text{t}}{\text{m}^2}$

$$p_R = 1,1 + 5,28 = 6,38 \frac{\text{t}}{\text{m}^2} \quad m = \frac{8,28}{6,38} = 1,3$$

$$p_A = 3,0 + 5,28 = 8,28 \frac{\text{t}}{\text{m}^2}$$

$$H = 0,943 \times \frac{6,3}{6} \cdot 6,38 = 6,3 \frac{\text{t}}{\text{m}^2}$$

$$M_a = 10,55 \cdot 0,0825 = 0,87 \frac{\text{t}}{\text{m}}$$

$$S = \frac{6300}{3400} \cdot 1,08 - \frac{87000}{19250} = 2,0 - 4,5 = -2,5 \frac{\text{kg}}{\text{cm}^2}$$

S ✓

LT 3-2TLU $p = \frac{5,08}{1,20} = 4,23 \frac{\text{t}}{\text{m}^2}$

S

1	2	3	4	5	6	7	8
←			S			←	S-S

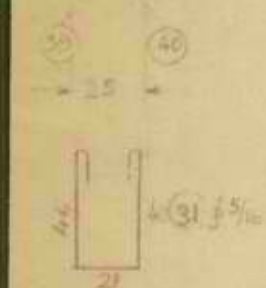
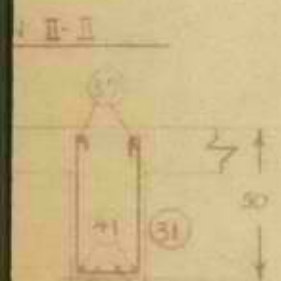
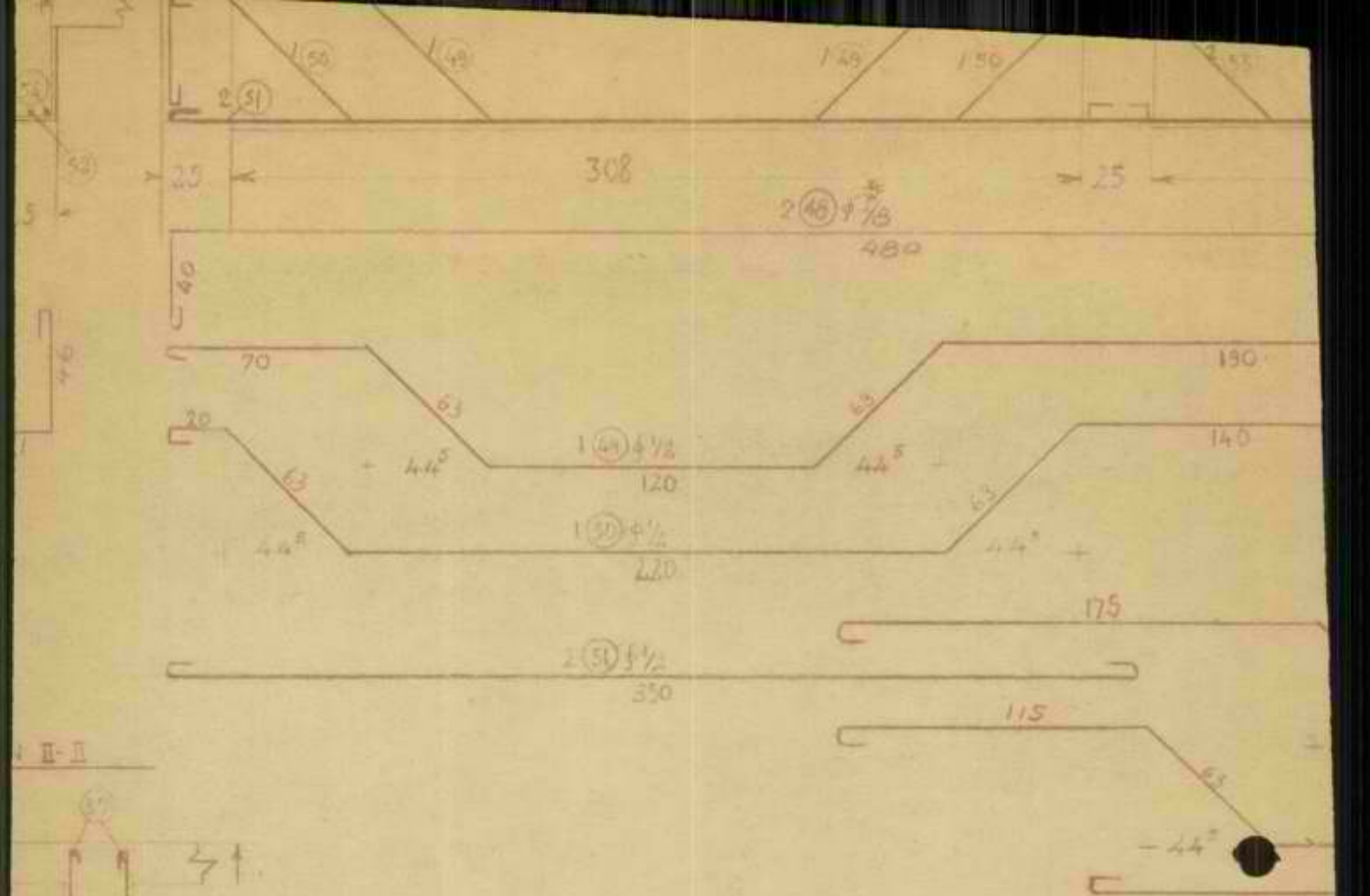
20.8.42
~~2~~

Checked 20.8.42

noted 20/2/42

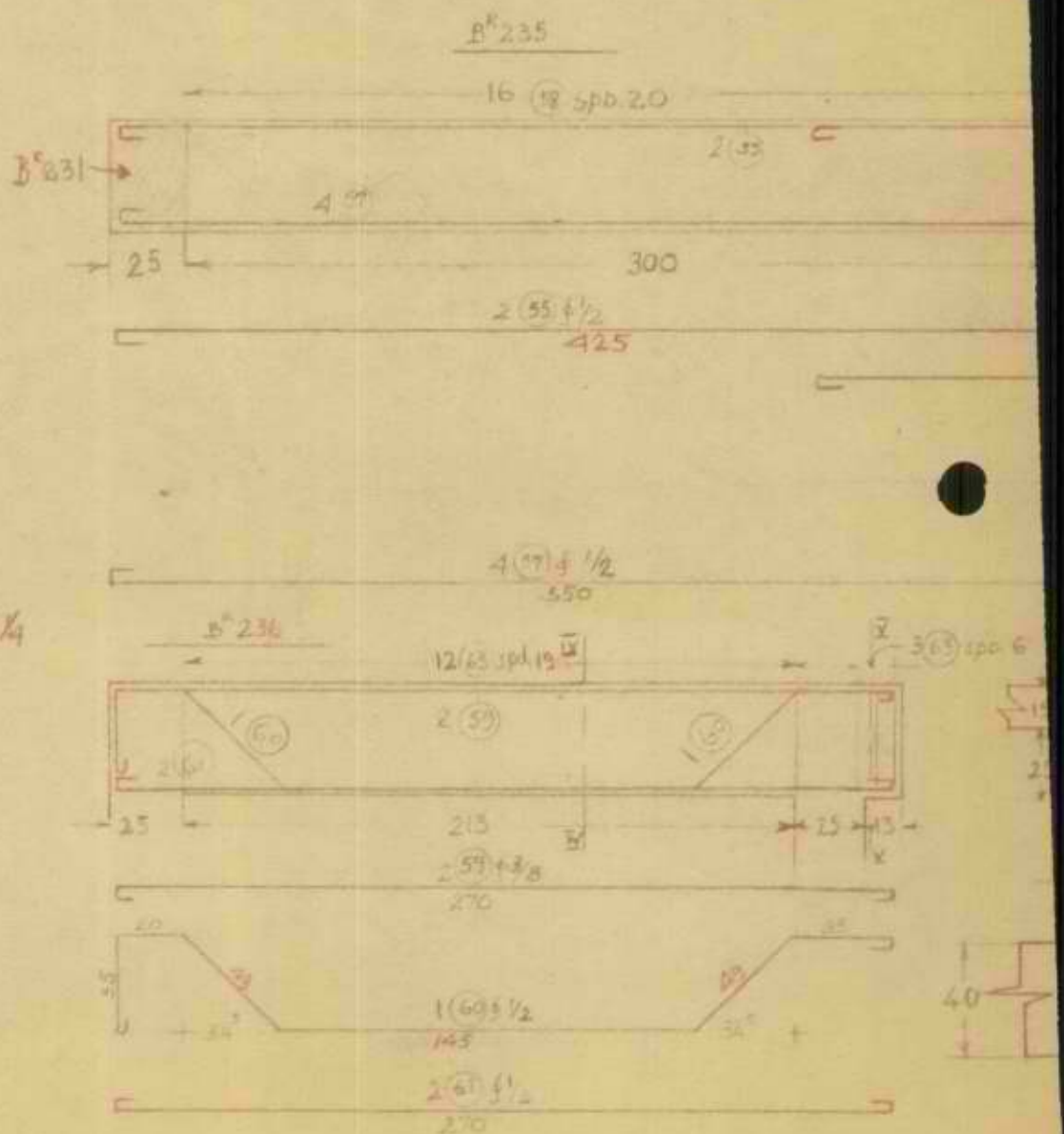
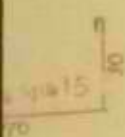
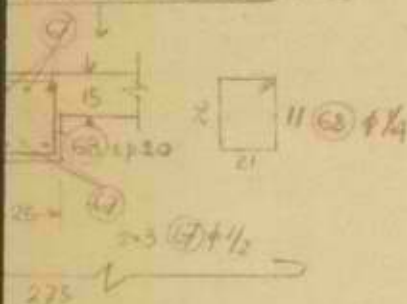
yq

yq

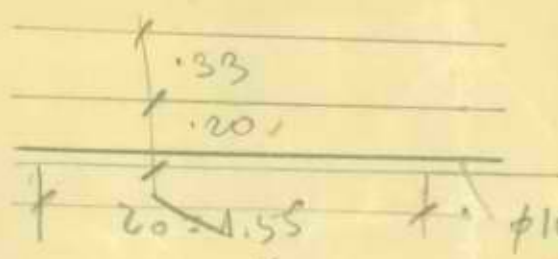


RES SHOWN IN BRACKETS
FOR B* 228 ONLY

SECTION THRO' B* 202



Qalyalya Tul'karm KM 100/1



$$l = 1.70 \quad D = 20 \quad h = 17.5$$

$$A_s = \phi 10 \text{ sp } 40 = 1.97 \text{ cm}^2$$

$$X = \frac{15 \times 1.97}{100 \times} \left(-1 + \sqrt{1 + \frac{200 \times 17.5}{15 \times 1.97}} \right) = 2.9 \text{ cm}$$

$$x_e = 17.5 - 1.0 = 16.5 \text{ cm}$$

$$M_s = 1400 \times 1.97 \times 16.5 = .455 \text{ tm}$$

$$M_c = 75 \times 2.9 \times 16.5 \times 100 \times \frac{1}{2} = 1.8 \text{ tm}$$

$$q = 2.4 \times .2 + 2.1 \times .33 = 1.17$$

$$M_g = 1.17 \times \frac{1.7^2}{8} = .422 \text{ tm}$$

$$2A1TLL \quad b = 2.28 \quad P = \frac{7.5}{2.28} = 3.29 \text{ H/m}$$

$$b' = .76$$

$$M_p = 3.29 \times \frac{3.4 - .76}{8} = 1.08$$

$$\Sigma M = 1.50 \text{ tm}$$

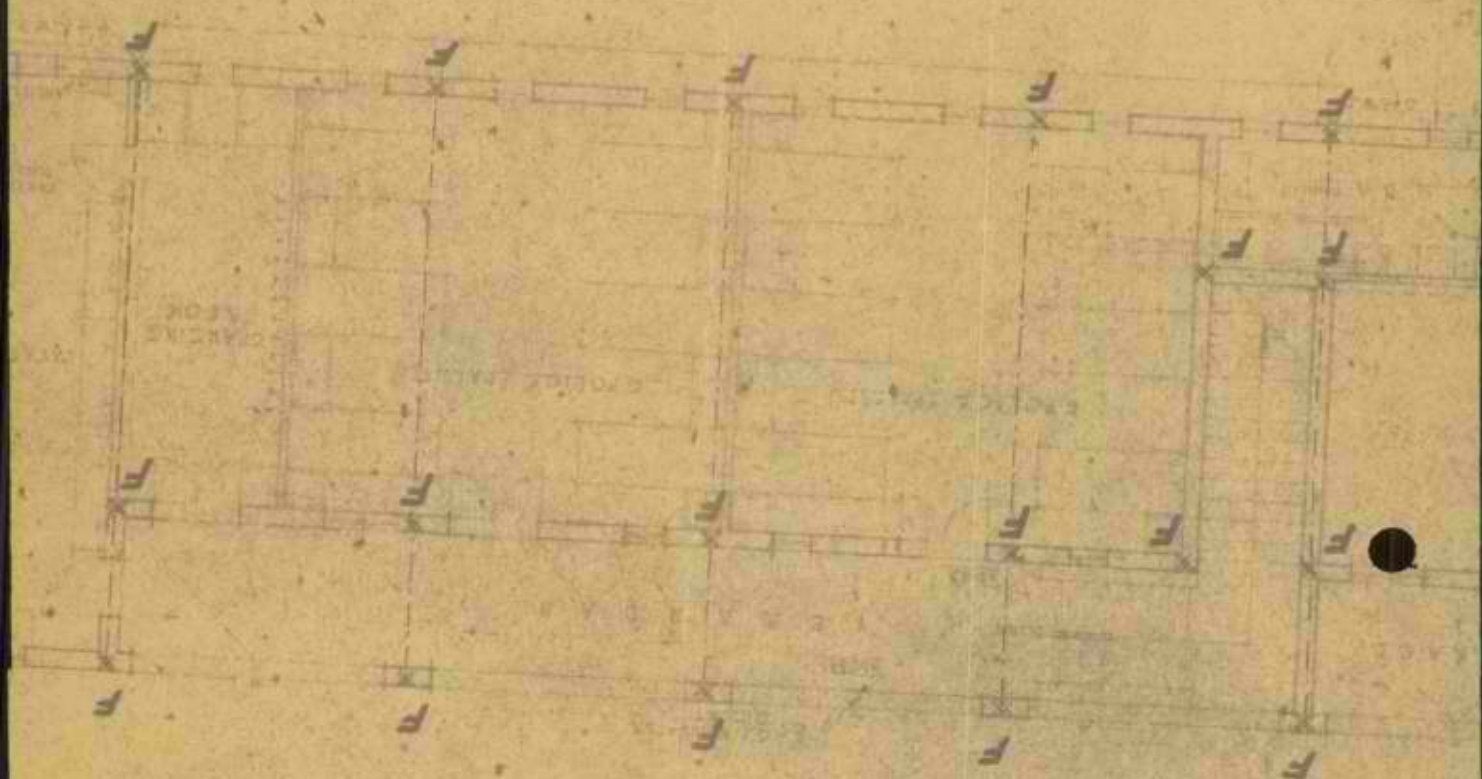
$$n = \frac{.97}{1.50} = .6$$

23.8.42

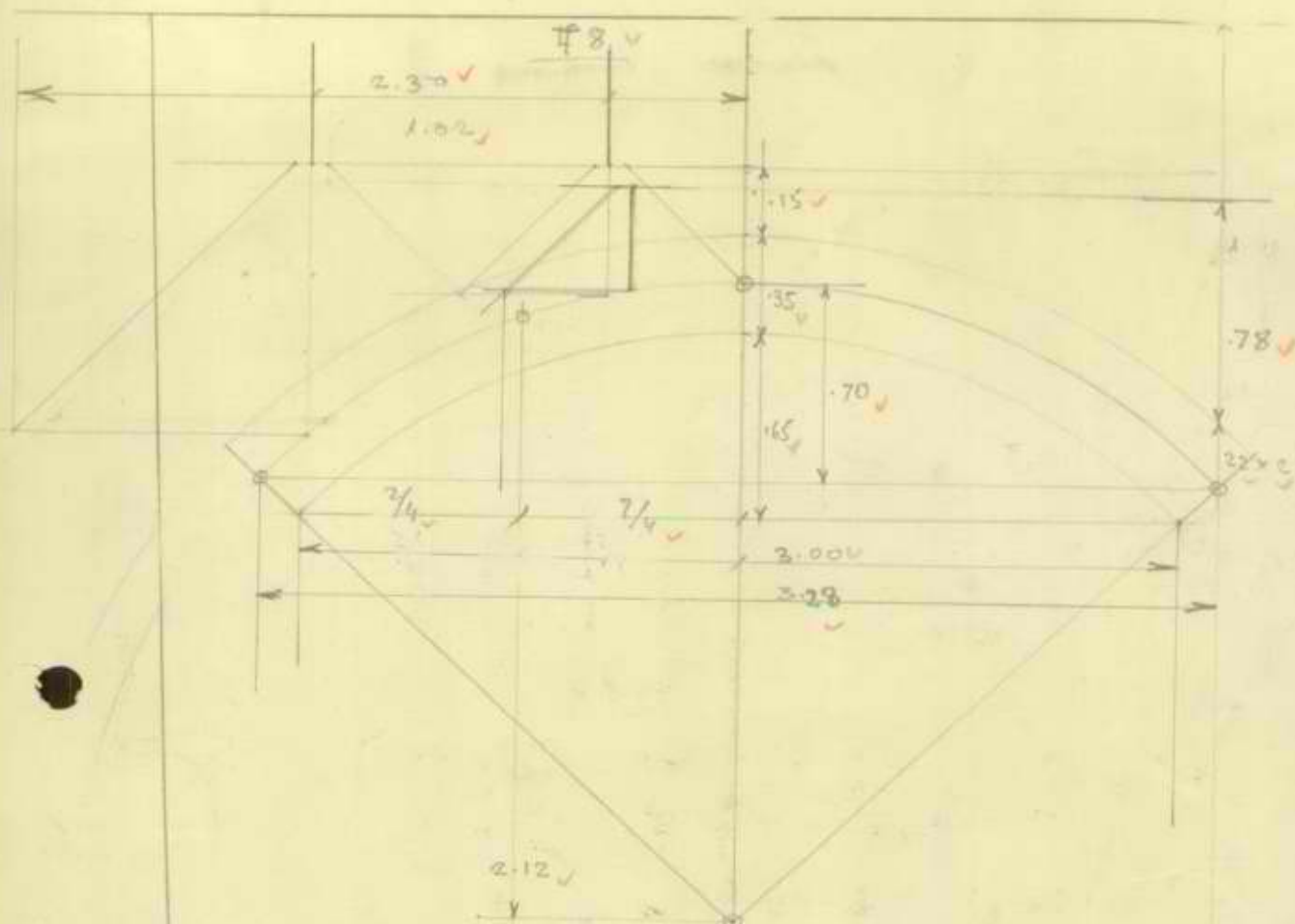
chub $\frac{23 \times 42}{5}$

NOTE

FOR DETAILS OF VERTICAL REINFORCEMENT TYPES **P**, **E**, **F** SEE
STANDARD R.C. DETAILS, DRWG NO B/1551/S/20
FOR DETAILS OF VERTICAL REINFORCEMENT IN WALLS OF TOWERS
SEE STANDARD R.C. DETAILS OF TOWERS



QALQILYA - TULKARM RD KM 100/2



$$m = \frac{3.28}{1.70} = 4.9$$

$$P_R = 2.6 \times 0.35 + 2.1 \times 1.15 = 1.91 + 2.415 = 4.325 \text{ m}^2$$

$$P_A = 2.6 \times 0.44 + 2.0 \times 0.78 = 1.14 + 1.56 = 2.70 \text{ m}^2$$

$$\text{AREA} = 3500 \text{ cm}^2$$

$$S.M = 100 \times \frac{3.28^2}{6} = 20400 \text{ cm}^3$$

$$\frac{8 \text{ AZTLU}}{3.0 \times 2.3} = \frac{54.0}{3.0 \times 2.3} = 7.8 \text{ m}^2$$

$$P_R = 4.32 + 3.9 = 8.22 \text{ m}^2$$

$$m = \frac{6.60}{5.13} = 1.29$$

$$P_A = 2.70 + 3.9 = 6.60 \text{ m}^2$$

$$H = \frac{3.28^2}{8 \times 7} \times \frac{6.27}{6} \times 8.22 = 1.92 \times 1.05 \times 8.22 = 16.32 \text{ m}$$

$$H_a = 7.8 \times \frac{3.28^2}{64} = 131 \text{ m}$$

$$6 = \frac{10320}{3500} \times \frac{2.96}{2.12} - \frac{131000}{20400} =$$

$$= 3.14 - 6.41 = -3.27 \text{ m}^2$$

S-5

SECTION E-F
THRO. BR. 412

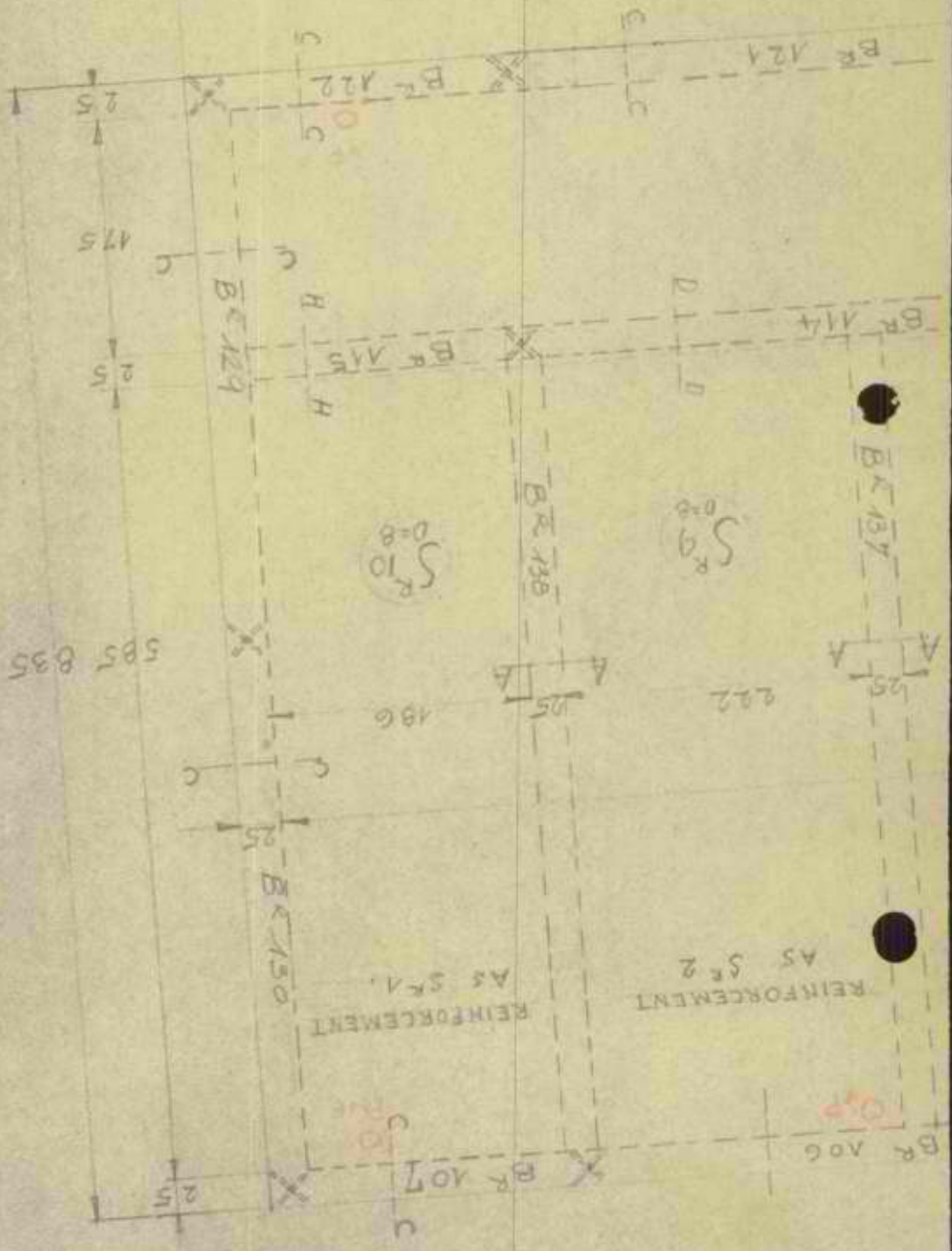
SECTION D-D
THRO. BR. 410, 411, 412, 414

SECTION C-C
110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

SECTION

36

SECTION



QALAHYA - TULKARH RD KH 100/2

72TLU

$$b = 3.6$$

$$b' = .83$$

$$P = \frac{30.3}{3.6 \times .83} = 10.65 \frac{1}{\text{km}^2}$$

7BITLU

$$b = 4.88$$

$$b' = .83$$

$$P = \frac{30.3}{4.88 \times .83} = 7.47 \frac{1}{\text{km}^2}$$

S - SL ✓

6B2TLU

$$b = 3.00$$

$$b' = .83$$

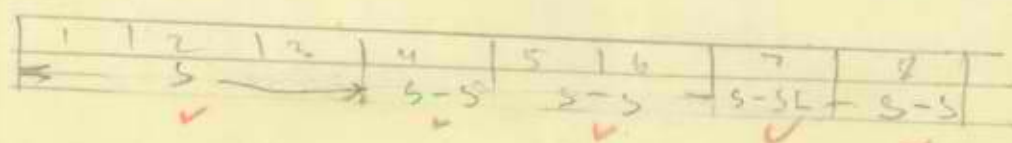
$$P = \frac{19.5}{3.0 \times .83} = 7.84$$

6BITLU

$$b = 4.08$$

$$b' = .83$$

$$P = \frac{19.5}{4.08 \times .83} = 5.75 \frac{1}{\text{km}^2}$$

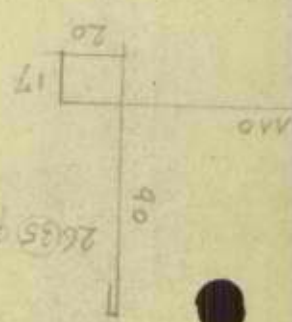


20.8.42

2A2TLU

checked 20.8.42 *gg*
\$

21



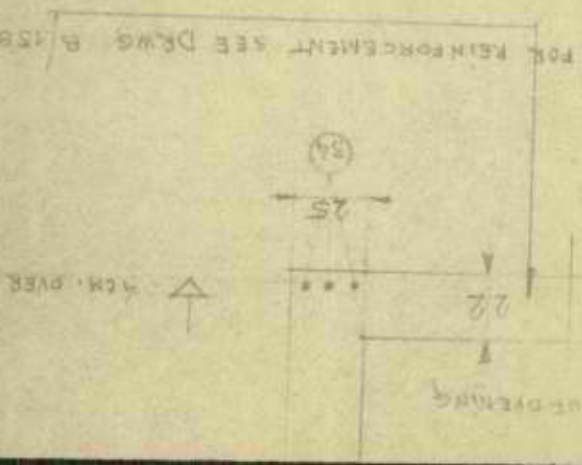
26G50.5/16.3RD.15

3 @ 1/2

3 @ 1/2

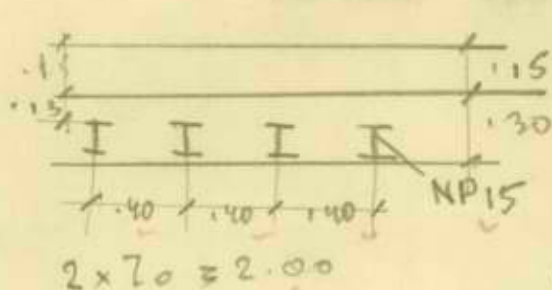
BAES & CM. OVER OPEN. ∇

∇ TOT LEVEL AT OPENING



FOR REINFORCEMENT SEE DWG. B.15B

QALQILYA - TULKAREN KM 103/1



$$L = 2.10 \text{ m} \quad W = 98.0$$

$$H_p = 1400 \times 98 = 1.37 \text{ tm}$$

$$q_z = (2.2 \times 0.3 + 2.1 \times 0.15) \times 4 + 0.016 = 0.406 \text{ t/m}$$

$$H_g = 0.406 \times \frac{2.10^2}{8} = 0.22 \text{ tm}$$

$$8 \text{ AITLL} \quad b = 2.9 + 0.56 = 3.46 \text{ m} \\ b' = 0.10 + 0.56 = 0.66 \text{ m}$$

$$P = \frac{18}{3.46} \times 4 = 2.07 \text{ t/m}$$

$$H_p = 2.07 \times \frac{(4.20 - 0.66)^2}{8(2.10 - 0.66)} = 2.07 \times 0.556 = 1.15 \text{ tm}$$

$$1.37 \text{ tm} \\ S-SL$$

$$7 \text{ AITLL} \quad b = 0.60 + 0.56 = 1.16 \text{ m} \\ b' = 0.66 \text{ m}$$

$$P = \frac{13}{2 \times 1.16} \times 4 = 2.25 \text{ t/m}$$

$$H_p = 2.25 \times \frac{4.20 - 0.66}{8} = 2.25 \times 0.444 = 1.00 \text{ tm}$$

$$S-H: 1.00 \text{ S-SL}$$

$$6 \text{ BITLL} \quad b = 0.66 + 0.56 = 1.22 \text{ m}$$

$$P = \frac{13}{2 \times 1.22} \times 4 = 2.13 \text{ t/m}$$

$$S-SL$$

$$4 \text{ AITLL} \quad b = 0.30 + 0.56 = 0.86 \text{ m}$$

$$P = \frac{8.5}{2 \times 0.86} \times 4 = 1.98 \text{ t/m}$$

$$S-SL$$

$$2 \text{ A2TLU} \quad b = 0.86 \text{ m}$$

$$P = \frac{11.25}{2 \times 0.86} \times 4 = 2.62 \text{ t/m}$$

$$H_p = 2.62 \times 0.444 = 1.16 \text{ tm}$$

$$1.38 \text{ tm}$$

$$S$$

$$3 \text{ ITL} \\ 3-2 \text{ TL}$$

$$b = 0.52 + 0.56 = 1.08 \text{ m} \\ L = 104 + 36 + 56 = 196$$

$$P = \frac{38.5}{2 \times 1.08 \times 3.79} \times 4 = 1.88 \text{ t/m}$$

$$H_p = 1.88 \times \frac{2.1}{8} = 1.04 \text{ tm} \quad H_p = 1.04 \times \frac{2.16}{196} = 1.15 \text{ tm}$$

$$1.26 \text{ tm}$$

$$S-437$$

1	2	3	4	5	6	7	8
S				S-SL			

noted
20/8/2024

19.842
49

RO B²214



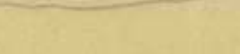
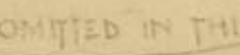
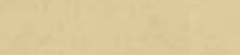
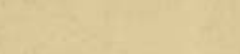
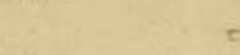
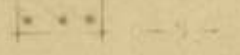
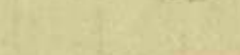
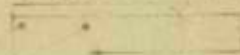
(15)

SECTION THRO



REINFORCEMENT

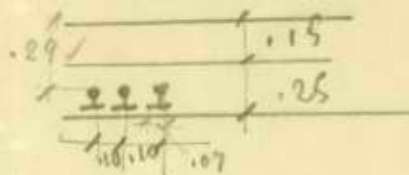
SECTION THRO B²241



240, 242, 243, 244 OMITTED IN THIS DRWG.

E.g. 12

QAL QILYA TULKAREH KM 104/2



$$L_0 = 1.6$$

$$W = 100.0 \text{ cm}^3 \quad H = 1400 \times 40 = .56 \text{ km}$$

$$L = 1.75$$

$$g = (2.4 \times .25 + 2.1 \times .15) \cdot 10 = .09 \text{ m/r}$$

$$H_g = .09 \times \frac{1.75^2}{8} = .038 \text{ km}$$

8A 2 TLU

$$b = 3.00$$

$$b' = .10 + .58 = .68$$

$$P = \frac{28.5}{3} \times .10 = .95 \text{ r}$$

$$H_p = .95 \times \frac{3.50 - .68}{8} = .95 \times .35 = .3325$$

$$\Sigma M = .370 \text{ km}$$

7B 2 TLU

$$P = .84$$

7A 2 TLU

$$b = (.60 + .58) \times 2 = 1.18 \times 2$$

$$P = \frac{19.5}{2 \times 1.18} \times .10 = .82 \text{ r}$$

6B 2 TLU

$$b = 2 \times .66 + .30 + .58 = 2.20$$

$$P = \frac{19.5}{2.20} \times .10 = .89 \text{ r}$$

4A 2 TLU

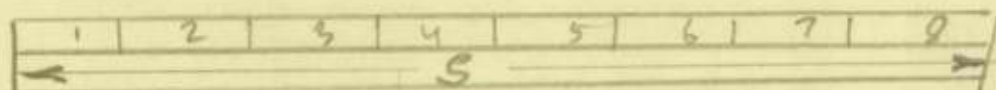
$$b = 2 \times .30 + .30 + .58 = 1.48$$

$$P = \frac{12.75}{1.48} \times .10 = .86 \text{ r}$$

3 2 TL

$$b = .52 \times 2 + .36 + .58 = 1.98 \text{ m}$$

$$P = \frac{38.5}{1.98 \times 3.79} \times .10 = .514 \text{ m/r}$$



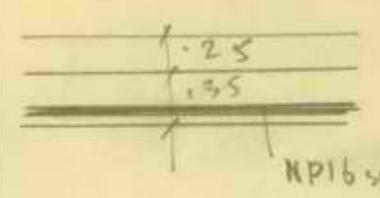
noted
20/8/42
48

checked 20.8.42
\$

[illegible]

TULKARM KALKILIA RD. BRIDGE SOUTH OF IRDACH, KM 107/1 ^①

SOUTH



NP16 spd 35

$$L = 3.50$$

$$b = 35 - 10 = 25$$

$$A_s = \frac{22.8}{3} = 65 \text{ cm}^2$$

$$J = \frac{935}{35} = 26.70 \text{ cm}^4$$

$$Z_0 = 3 \times 3.35$$

$$X = \frac{15 \times 65}{100} \left(-1 + \sqrt{1 + \frac{200 \times 25}{15 \times 65}} \right) = 14.30$$

$$q = 2.4 \times 3.35 + 2.1 \times 3.35 = 1.37 \text{ t/m}$$

$$H_g = 1.37 \times \frac{3.5^2}{8} = 2.08 \text{ tm}$$

$$= 97300 + 77470 \times 15 = 214300 \text{ cm}^4$$

$$B_c = \frac{75 \times 15 (35 - 14.30 - 2)}{14.30} = 1470$$

$$B_c = \frac{1400 \times 14.30}{15 \times 18.7} = 71.5 \text{ kg/cm}^2$$

$$M_{perm} = \frac{71.5 \times 214300}{14.30} = 10.70 \text{ tm}$$

8AITLL

$$b = 3.40$$

$$b' = 10 + 50 = 60$$

$$P = \frac{18}{3.40} = 5.27 \text{ t/m}$$

$$M_p = 5.27 \times \frac{(7.00 - 1.02 - 0.60)^2}{8(3.5 - 0.6)} = 5.27 \times 1.25 = 6.6 \text{ tm}$$

2.08

8.68 S-S

7B2TLV

$$b = 3.6$$

$$p = \frac{30.3}{3.6} = 8.4 \text{ t/m}$$

$$M_p = 8.4 \times \frac{7.0 - 0.60}{8} = 8.4 \times 1.8 = 6.73$$

2.08

EM = 8.81 S

6BITLV

$$b = (0.66 + 50)2 = 2.32 \text{ m}$$

$$P = \frac{19.5}{2.32} = 8.4 \text{ t/m}$$

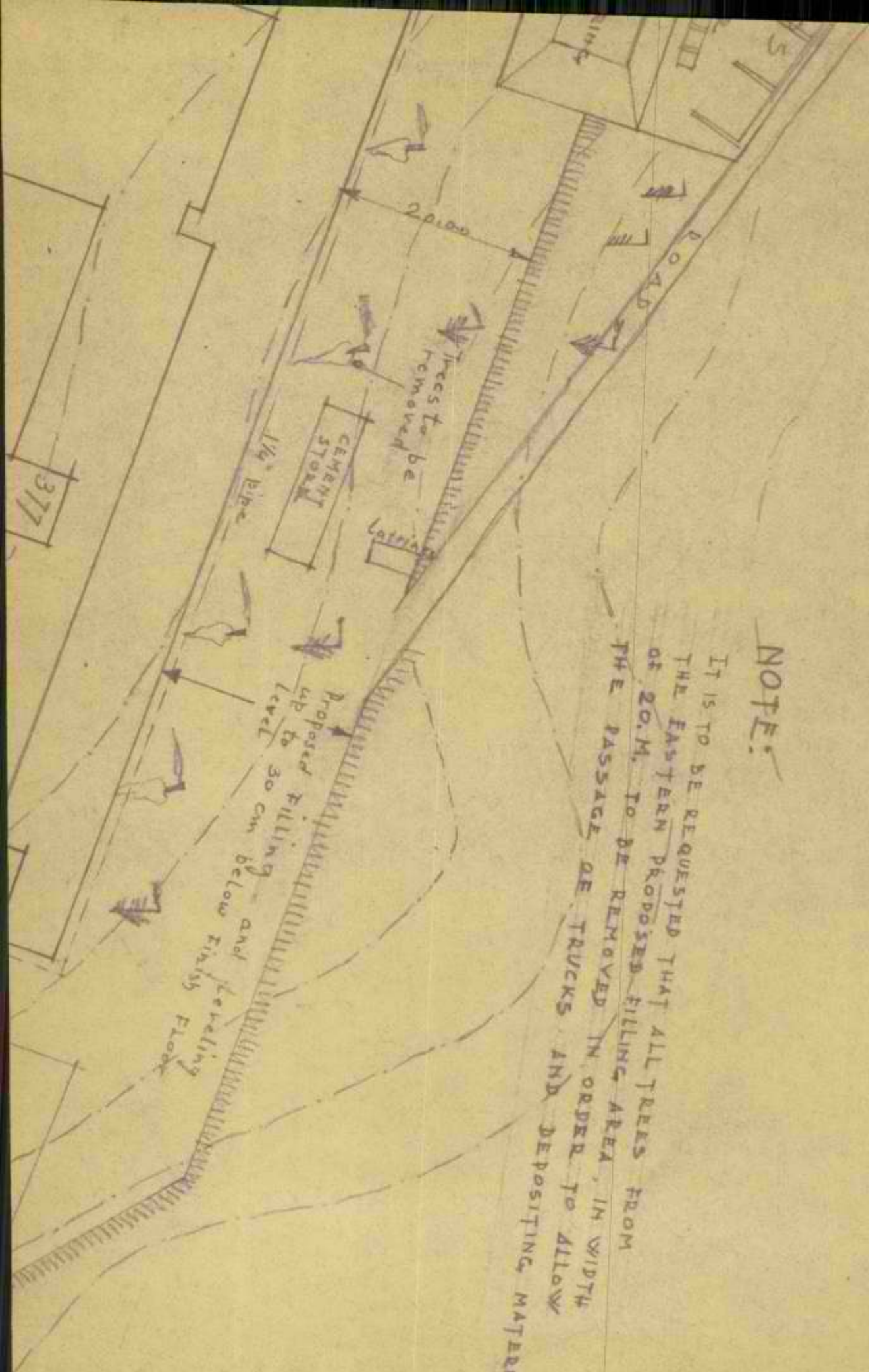
$$M_p = 8.4 \times \frac{(7.00 - 1.32 - 0.60)^2}{8(3.5 - 0.6)} = 9.29 \text{ tm}$$

2.08

11.37 tm S-S

NOTE:

IT IS TO BE REQUESTED THAT ALL TREES FROM
THE EASTERN PROPOSED FILLING AREA, IN WIDTH
OF 20.M. TO BE REMOVED IN ORDER TO ALLOW
THE PASSAGE OF TRUCKS AND DEPOSITING MATERIALS.



TULKARM KALKILIA RD, BRIDGE SOUTH OF IRDACH

KM 107/1

(2)

4A1TLU

$$b = (.50 + .50)2 = 1.6$$

$$P = \frac{12.75}{1.6} = 7.95 \frac{1}{2}$$

$$M_p = 7.95 \frac{(70 - 1.58 - .60)^2}{8(5.5 - .6)} = 2.65 \frac{5.02}{2.08} \text{ km}$$

$$10.75 \text{ km}$$

S-S

2A2TLU

$$b = .90 + .50 = 1.4$$

$$P = \frac{11.25}{1.40} = 8.75 \frac{1}{2}$$

$$M_p = 8.75 \frac{(7.0 - 1.4 - .60)}{8 \times .9} = 9.45 \frac{2.0}{2.08}$$

$$11.53$$

S-S

31TL

$$b = (.52 + .50)2 = 2.04$$

$$P = \frac{38.5}{2.04 \times 3.79} = 4.98 \frac{1}{2}$$

$$M_p = 4.98 \times \frac{3.5^2}{2} = 4.98 \times 1.53 = 7.6 \text{ km}$$

S-S

1	2	3	4	5	6	7	8
S-S	S-S	S-S	S-S	S-S	S-S	S	S-S

$$R 9/8 \sqrt{2}$$

$$9.8.42 \frac{1}{2}$$

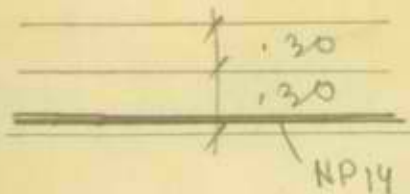


TULKARI - KALKILARD, BRIDGE SOUTH OF IRDACH

KM 107/1 ③

NORTH

$$L = 2.15 \text{ m}$$



$$A_s = \frac{18.3}{.35} = 52.3 \text{ cm}^2$$

$$J = \frac{573}{.35} = 1640 \text{ cm}^4$$

$$h = .30 - 9 = 21$$

$$L_0 = 3 \times 2.05 + 2 \times 0.55$$

$$x = \frac{15 \times 52.3}{100} \left(-1 + \sqrt{1 + \frac{200 \times 21}{15 \times 52.3}} \right) = 12 \text{ cm}$$

$$g = (2.1 + 2.4) \cdot 30 = 1.35 \text{ m}$$

$$H_g = 1.35 \times \frac{2.15}{8} = 0.78 \text{ tm}$$

$$J = \frac{100 \times 12^3}{3} + 15 (1640 + 52.3 \times 9^2) = 57600 + 15 \times 5890 = 145950 \text{ cm}^4$$

$$G_c = \frac{1400 \times 12^2}{15 \times (30 - 12 - 2)} = 70 \text{ kg/cm}^2$$

$$H_{poc} = \frac{70 \times 145950}{12} = 8.52 \text{ tm}$$

8A2TU

$$b = 3.00$$

$$b' = .70$$

$$P = \frac{27}{3} = 9 \text{ t/m}$$

$$M_p = 9 \times \frac{(4.35 - 1.72)^2}{8(2.15 - .7)} = 9 \times .573 = 5.15 \text{ tm}$$

$$5.93 \text{ tm}$$

S

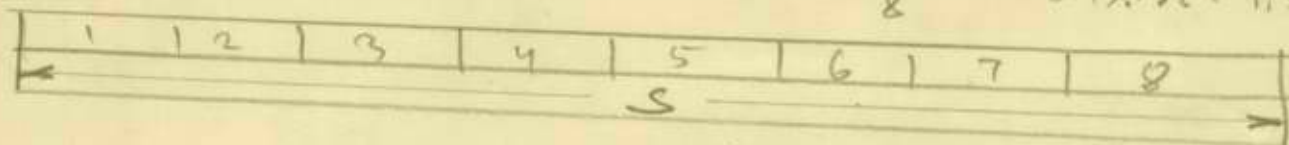
7B2TU

$$b = 3.60$$

$$b' = .70$$

$$P = \frac{30.3}{3.6} = 8.4$$

$$M_p = 8.4 \times \frac{2.15 - .70}{8} = 8.4 \times .182 = 1.53 \text{ tm}$$

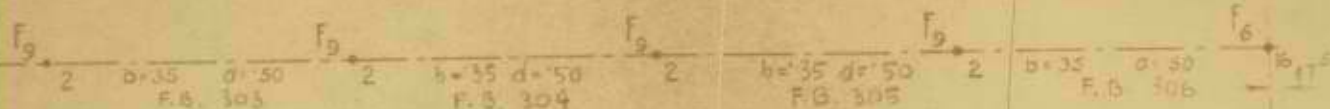


$$R. 9/8 \sqrt{42}$$

$$9.8.42$$

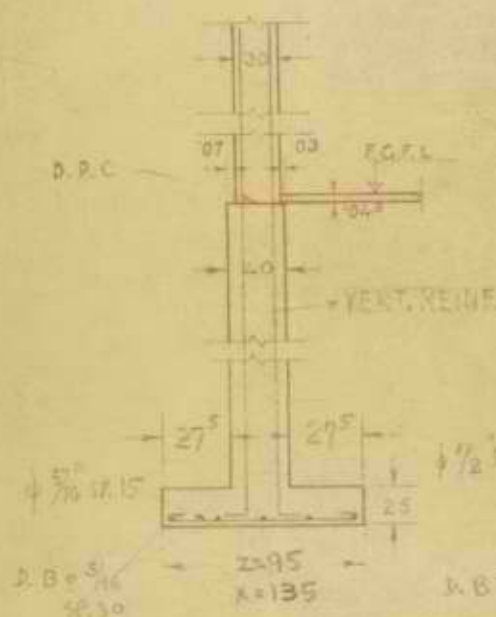
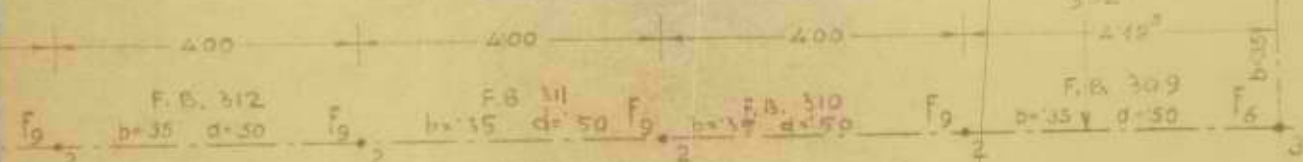
48

2404

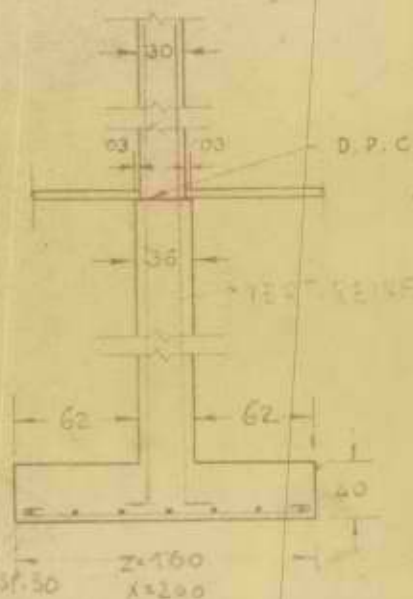


BLOCK III

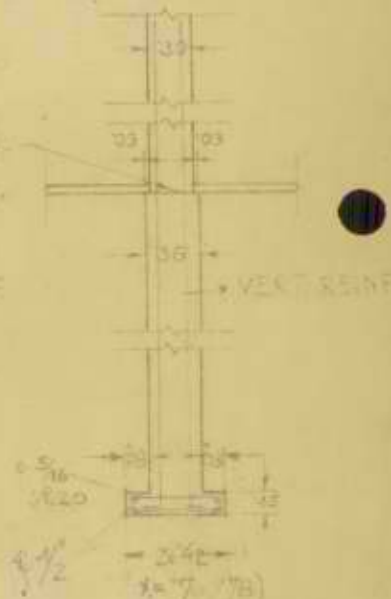
CONTINUED
DRWG B/1044



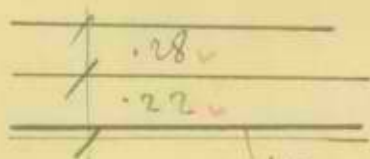
SECTION A-A



SECTION B-B



SECTION C-C
SECTION D-D



$$Z = 2.20 \quad D = 22 \quad h = 19.5$$

$$\phi 18 \text{ yd } 20 - 12.72 \text{ cm}^2$$

$$Z_o = 2.00$$

$$x = \frac{15 \times 12.72}{100} (-1 + \sqrt{1 + \frac{200 \times 19.5}{15 \times 12.72}}) = 6.72 \text{ cm}$$

$$g = 2.4 \times 22 + 2.1 \times 28 = 1.124$$

$$Z = 19.5 - 2.24 = 17.26 \text{ cm}$$

$$M_g = 1.12 > \frac{2.2^2}{8} = .68$$

$$M_c = 75 \times 6.72 \times 17.26 \times 100 \times \frac{1}{2} = 4.35 \text{ tm}$$

$$M_s = 1400 \times 12.72 \times 17.26 = 3.08 \text{ tm}$$

8A1TLL

$$b = 4.06$$

$$P = \frac{18}{4.06} = 4.43 \text{ 1/m}$$

$$M_p = 4.43 \times \frac{(4.4 - 1.78)^2}{8(2.2 - .66)} = 4.43 \times .556 = 2.47 \text{ tm}$$

$$M_g = .68$$

$$\leq M = 3.15 \text{ tm S-SL}$$

7B1TLL

$$b = 4.3 \text{ m}$$

$$P = \frac{20.2}{4.3} = 4.7 \text{ 1/m}$$

$$M_p = 4.7 \times \frac{4.4 - .66}{8} = 4.7 \times .468 = 2.2 \text{ tm}$$

$$2.88 \text{ S-SL}$$

6B1TLL

$$b = 2.86 \text{ m}$$

$$P = \frac{13}{2.86} = 4.54 \text{ 1/m S-SL}$$

4B1TLV

$$b = 3.96$$

$$P = \frac{19.5}{3.96} = 4.93 \text{ 1/m}$$

$$M_p = 4.93 \times .468 = 2.31 \text{ tm S-S}$$

2A2TLV

$$b = 2.76$$

$$P = \frac{11.25}{2.76} = 4.09 \text{ 1/m S}$$

32TL

$$b = 1.2$$

$$P = \frac{5.08}{1.2} = 4.23 \text{ 1/m}^2$$

$$M_p = 4.23 \times \frac{2.2^2}{8} = 2.56 \text{ tm}$$

③ 1TL

$$b = 1.52$$

$$3.24 \text{ S-S}$$

1	2	3	4	5	6	7	8
S-S	S	S-S	S-S	S-S	S-S	S-S	S-S

$$18.8 \text{ 1/m}^2$$

